

REMARKS

This is in response to the Office Action dated August 29, 2006. In view of the foregoing amendments and following representations, reconsideration is respectfully requested.

By the above amendment, claims 4-8 have been canceled and claim 9 has been amended. Thus, claims 9-13 are currently pending in the present application. Note that claim 9 has been amended for the purpose of overcoming a rejection under 35 U.S.C. 112, second paragraph, and therefore should not raise any new issue that would require further consideration and/or search.

On pages 2-3 of the Office Action, claims 6-8 are rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement. However, this rejection has been rendered moot in view of the cancellation of claims 6-8.

Next, on pages 3-4 of the Office Action, claims 9-13 are rejected under 35 U.S.C. 112, second paragraph. In response, the language of claim 9 that is considered unclear by the Examiner has been removed from the claim. Also, the bottom surface of the plating chamber is now described as defining a quadratic curve in vertical cross section. This language should alleviate the confusion regarding the original language of claim 9. In view of the above, it is submitted that claim 9 is now clearly in compliance with the requirements of 35 U.S.C. 112, second paragraph.

On pages 7-11 of the Office Action, the remaining claims are rejected as follows:

Claims 9-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathieu (U.S. Patent No. 6,685,817) in view of Chen et al. (U.S. Patent No. 6,565,729); and

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mathieu in view of Chen et al. and further in view of French Patent No. 2046679.

It is submitted that the present invention, as embodied by claims 9-13, clearly distinguishes over the applied references for the following reasons.

The present invention, as defined in independent claim 9 requires, *inter alia*, flowing an electroless plating treatment liquid as a laminar flow along a bottom surface of a plating chamber, wherein the bottom surface of the plating chamber spreads upwardly and outwardly so as to define a quadratic curve in vertical section. This arrangement is shown in Fig. 2 for example (see page 15, lines 5-13 and page 17, lines 7-18).

Due to the particular bottom surface of the plating chamber, the plating liquid flows smoothly in a laminar flow along the bottom surface without generating a vortex locally. Accordingly, the depth of the plating chamber can be reduced, thereby resulting in downsizing of the plating apparatus.

Mathieu in Fig. 4 discloses a plating method which includes directing a surface of a substrate 64 to be plated downwardly. In contrast to the present invention, the plating system disclosed in Mathieu includes a bucket 76 having flat inner surfaces, and a nozzle 104 which directs the plating solution upwardly in a vertical direction (i.e., in a direction that is substantially orthogonal to the bottom surface of the bucket). Therefore, the plating solution in the Mathieu system clearly does not flow upwardly in a laminar flow along the surfaces of the bucket.

Chen discloses a main chamber having a curved surface along which a liquid flows in an upward direction. However, as is readily apparent from Fig. 9 of the Chen reference, the main

chamber 505 includes not only a curved surface (contoured sidewall 560), but also a breakpoint 570 and a slanted surface 565 for supporting one or more anodes. Therefore, the plating liquid cannot flow smoothly in a laminar flow along the sidewall of the main chamber 505 without generating a vortex locally during the liquid flow. Accordingly, it is submitted that the combined teachings of the Mathieu and Chen references would not result in the method defined in claim 9, which specifically requires “flowing an electroless plating treatment liquid as a laminar flow along a bottom surface of a plating chamber, wherein the bottom surface of the plating chamber spreads upwardly and outwardly so as to define a quadratic curve in vertical section.” Accordingly, it is submitted that claim 9 is clearly allowable over the collective teachings of the Mathieu and Chen references. Claims 10-13 ultimately depend from claim 9, and are therefore allowable at least by virtue of their dependencies.


Further, French reference ‘679 does not disclose or suggest the limitation that is omitted in the Mathieu and Chen references.

In view of the above, it is submitted that the present application is now clearly in condition for allowance. The Examiner therefore is requested to enter the above amendment, and pass this case to issue.

In the event that the Examiner has any comments or suggestions of a nature necessary to place this case in condition for allowance, then the Examiner is requested to contact Applicant's undersigned attorney by telephone to promptly resolve any remaining matters.

Respectfully submitted,

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December 21, 2006